

Equity Effects of Very Early Schooling in France

by E. D. Hirsch, Jr.

The following research article from France contains a statistical analysis of the effects of very early preschool (école maternelle) on later school performance in France. It was translated from the French for the Core Knowledge Foundation by Jean-Jacques Bevilacqua and Linda Williams Bevilacqua.

The statistical analysis was undertaken in the 1990s at the behest of the French government to help determine whether the gains by students who start at age two would warrant diverting large expenditures to begin preschool at age two for all children, or only for disadvantaged children. It is taken for granted that all children will start preschool at age three or four.

By way of background, the American reader should be aware of some fundamental facts about the French preschool system which the article takes for granted in the reader.

The French have long recognized the benefits of preschool for 3-4 year olds, as indicated by the nearly universal attendance of children at those ages. The attention of the French researchers in this article is therefore not devoted to assessing the value of preschool, which is taken for granted, but to determine whether the benefits of starting at age two as compared to age three warrant additional public expenditure. Hence, much of the article simply focuses on the (remarkable) differences between children who started preschool at two rather than three. The cautious conclusions drawn by the French researchers from their stunning results should be understood in the context of their aim to look at the differential benefits between starting early (age 3) versus starting very early (age 2), to see if a lot of public money should be allocated there instead of somewhere else in schooling. They assume that the powerful benefits of starting at age three or four have already been documented, for instance in an earlier longitudinal study: Duthoit, M., *L'enfant et l'école: Aspects synthétiques du suivi d'un échantillon de vingt mille élèves des écoles*, Education et Formations, 1988, numero 16, pp.3-13. This study followed over 20,000 preschoolers through all grades of elementary school, and found a high correlation between whether a child attended preschool and whether the child repeated a later grade. Grade retention occurs at third or fourth grade in France, and social promotion is unheard of. The longer the child attended preschool, the more dramatic were the results, as indicated in the following table from Duthoit:

Years in preschool attendance	% of sample that repeated a grade
3 years	10%
2 years	14.5%
1 year	18.3%
0 years	30.5%

Since most who repeat a grade come from the ranks of the disadvantaged, it will be seen simply from these figures that preschooling has broad educational as well as a social-equity benefits in France.

Some further points to keep in mind:

1. The French preschool follows a definite curriculum for three full years: the younger section (age 3-4), the middle section (age 4-5) and the older section, corresponding to our kindergarten (age 5-6). For each age group, definite psychomotor, developmental, academic and social goals have been outlined nationwide for all schools, while at the same time, individual schools and their well-prepared teachers are encouraged to follow their own best judgment in attaining the common goals by being sensitive to individual variations.

2. Class size averages 25 to 30 children per class. The instructors are well-trained professionals who at a minimum have a master's degree. They are just as highly paid and respected as teachers in the later grades.
3. Almost all children attend. Although not compulsory, preschool is available at no cost to all 3-5 year-olds. Currently, 97.5% of all French children attend preschool at age 3-4; 100% attend at age 4-5; and 100% attend at age 5-6. Approximately 35% of all two year olds now attend! This option for very early preschool attendance is currently offered in a limited number of regions.

I believe that the most notable results of the following study are:

1. The relative benefits of an early start in a French preschool increase over time, the effect being much greater in fifth than it was in first grade. (Compare this to the opposite pattern, the "fade-out effect" of our Head Start programs, mentioned below.)
2. By the end of fifth grade in France, the relative benefit to disadvantaged pupils who start at age 2 rather than age 4 is 7.8 points (over one-half a standard deviation) as compared to a benefit of only 4.6 points for advantaged students. Thus, the long-term gain for disadvantaged students is not only relatively but absolutely greater by a large margin.

These significant gains by disadvantaged children offer further confirmation of Coleman's 1966 finding that disadvantaged children derive relatively greater benefits from effective schooling (and suffer correspondingly greater harm from ineffective schooling). It also confirms the underlying premise behind Head Start programs.

Unfortunately, the equity results of American Head Start programs have been altogether disappointing. Instead of causing a lasting benefit through the grades, Head Start yields only slight benefits in the first grade which fade out entirely by third or fourth grade. Nothing could be more striking than this contrast between the ever-increasing academic benefits of very-early preschool in France, and the sharply decreasing benefits in the United States. This stunning contrast between the equity-results of French and of American early-start programs probably stems chiefly from the following deficiencies in American Head Start programs:

1. Lack of a definite curriculum and of specifically-defined academic and developmental goals. In my opinion, this lack is owing to the dominance of romantic, anti-academic doctrine among American early-childhood educational experts.
2. Lack of adequate education and training of the typical Head Start instructor.
3. Lack of a coherent elementary curriculum in the grades that follow Head Start.

E. D. Hirsch, Jr.
March, 1998

Jarousse, Jean- Pierre, Mingat, Alain, Richard, Marc. La scolarisation maternelle a deux ans: effets pedagogiques et sociaux in Education et Formations, Ministere de l'Education Nationale, avril-juin, 1992

Jarousse, Jean- Pierre, Mingat, Alain, Richard, Marc. Starting Preschool At Two Years Old: Educational and Social Effects in Education and Formations, French National Department of Education, April-June, 1992 (Number 31).

Starting Preschool at Two Years Old

Abstract:

The French educational system is currently exerting pressure to extend public preschool classes to 2 year-olds. These efforts are based principally on the argument that the school environment may be an effective substitute for the home setting, especially in those situations in which the home does not provide sufficient stimulation for the young child (socioeconomically disadvantaged families and those in which the language spoken at home is not French).

Regarding the question of the benefits of preschool for 2 year-olds, it is therefore clearly necessary to look for a factual basis that either supports or contradicts publically held opinions.

Jean Pierre Jarousse, Alain Mingat, Marc Richard are part of the Institute for Research on Affordable Education, IREDU-CNRS: University of Burgundy. This study has been financed by the Department of Evaluation and Prognosis.

In the first years of primary school, important achievements for students who entered preschool at 2 years old

One can measure the differences in scholastic performance (the «gross» effects) by directly comparing the achievements of students who have had two, three or four years of preschool experience (Table 1).

TABLE 1

Average achievement level of students at the beginning of first grade and at the end of second grade according to preschool entry age

Preschool entry age	2 years old	3 years old	4-5 years old	Difference
Evaluation at the start of 1st grade				
Cognitive	104.4	100.2	89.0	+ 4.2
Language	104.0	100.4	98.4	+ 3.6
Behavior/school	102.0	99.8	98.4	+ 2.2
Evaluation at the end of 1st grade				
French	103.5	99.7	98.5	+ 3.8
Mathematics	103.5	100.3	98.3	+ 3.2
Evaluation at the start of 2nd				
French	103.1	98.8	98.2	+ 4.3
Mathematics	103.3	99.6	98.3	+ 3.7

Note: The average cognitive development score of students who entered preschool at 2 years of age is 104.4 points, 89.0 points for those who entered at 4/5 years old. All scores have been standardized to a mean of 100 and a standard deviation of 15.

Source of Information: IREDU Research Study of 1900 children, carried out in the French Department of Cote d'Or, from 1986 to 1989.

It is clear that student scores increase with the length of preschool enrollment: the greater the number of years in preschool, the higher the scores. This is especially confirmed when one compares the performance of pupils who entered at two years with those who entered at three years old. While not statistically significant, the differences are nevertheless substantial. The academic advantage for students who entered preschool at two years, as compared to three years of age, are comparable at every subsequent evaluation point during the school career (beginning of first grade, end of first grade, and end of second grade). At the beginning of first grade, the performance of students who entered preschool at two years old surpassed those who entered at three years by 4.2 points in measures of cognitive development. Likewise, measures of language development and work habits at the beginning of first grade revealed an advantage of 3.6 points and 2.2 points, respectively. Differences of the same intensity were observed in French and mathematics achievement at the end of first grade and second grade.

But other factors intervene

These elements are interesting, but difficult to extrapolate as a justifiable pedagogical basis for launching public policy to extend public schooling to two year-olds. Indeed, it is not certain a priori that groups of pupils who differ according to the age of preschool entry do not also differ equally on other variables (sex, socioeconomic level, nationality,...) that could, in and of themselves, have a significant impact on achievement and school performance. If such is the case, an analysis of the gross effects of early preschool experience, as presented above, is inadequate; rather, it is necessary to estimate the net effect of the target variable while controlling for the influence of these other possible factors. An examination of the characteristics of students, according to the age of entry, is the first step in this process. It is especially important to examine this possibility given that, in this sample, there are a limited number of subjects, 15%, who fall into the category of interest, i.e., those entering preschool at two years of age (Table 2).

TABLE 2
Distribution of the sample according to the age of preschool entry

	2 years old	3 years old	4-5 years old	Unknown	Total
Gross Percentage	11.2	51.2	12.4	25.1	100.0
Adjusted Percentage	15.0	68.4	16.6	-	100.0

Note: 15% of pupils of this sample entered preschool at 2 years of age.

Source of Information: IREDU Research Study of 1900 children, carried out in the French Department of Cote d'Or, from 1986 to 1989.

The age of preschool entry varies according to nationality and socioeconomic background

There are no observable differences according to sex; however, differences according to nationality or socioeconomic background are evident.

- 11.5% of the children who entered preschool at two years of age are foreign nationality as compared to 17.2% of the total sample.
- 35.9% of the children enrolled at 2 years of age are children of fathers holding administrative (middle and upper level) or technical positions as compared to 26.3% of the total sample.
- 15.8% of the children enrolled at 2 years of age have mothers working in the manual labor force, whereas this group represents 21.2% of the total sample.

Finally similar differences are revealed as a function of the type of family housing, with a lower percentage of early preschool enrollment among families living in government subsidized housing. Children from families living in subsidized housing represent 28.2% of the total population enrolled at two years old as compared to 35.3% of the total sample studied.

TABLE 3
Principal social characteristics of students according to the age of preschool entry.

	Age of Preschool Entry			Total
	2 years old	3 years old	4-5 years old	
% of girls	45.0	47.2	42.5	46.1
% foreign nationality	11.5	18.0	19.3	17.2
Father's Occupation				
% Specialized manual laborer	13.4	17.5	20.2	17.3
% Executive - Technician	35.9	24.5	25.3	26.3
Mother's Occupation				
% Manual laborer	15.8	23.3	17.6	21.2
% No profession	45.0	46.1	52.8	47.0
Housing				
% Government subsidized	28.2	35.8	39.5	35.3
% Single family dwelling	45.9	40.2	35.6	40.3

Note: 45.0% of the children of the sample entering preschool at 2 years old are girls.

Source of Information: IREDU Research Study of 1900 children, carried out in the French Department of Cote d'Or, from 1986 to 1989.

In short, preschool entry at two years old is less likely among disadvantaged families; the gross effects (Table 1) should be adjusted to take these considerations into account.

Box 1

Data from two previous studies may be of use in this regard: a portion of a study conducted by the IREDU in the French region of the Cote d'Or between 1985 - 1989 on the functioning of the primary school and another study carried out by the DEP on school achievement at the end of fifth grade in 1987.

The IREDU study focuses on approximately 1900 children for whom evaluations were carried out upon entry to first grade, and then again at the end of this same year, as well as at the end of second and third grade. Detailed additional information on the children and their families was also collected, including the age of preschool entry. In this sample, the majority of students (67%) entered preschool at 3 years old, but 15% entered at 2 years old.

The DEP study concerns a national sample of approximately 2100 children. Personal data on children and families are slightly less detailed than those of the preceding study, but still include the principal family characteristics such as the age of preschool entry. In certain respects, these two inquiries are complementary.

What this data permits...

On the basis of these studies, it is possible to examine the impact of the length (i.e., the number of years of attendance) of the preschool experience on scholastic achievement in the primary grades; it is possible to act as if the effects of preschool experience are limited to preparation for elementary school instruction. It is obviously possible to also suggest that early school experience had other objectives; these can not be evaluated with the data available in the studies cited above. These studies provide information on the question of the scholastic effects of the length of the preschool experience according to two dimensions:

Duration of effects over time. Data on student achievement is available at both the beginning and end of first grade, the end of second grade and the end of fifth grade; this allows for the examination of whether the effects of the length of preschool endure over time and if so, to what extent they diminish or change over several grade levels, up until middle school entry. Furthermore, since the IREDU study followed the same children for several years, it provides a longitudinal perspective, in which it is possible to go beyond the fixed points of observation to other periods of time, and directly analyze the effects of preschool experience duration on the progress of students throughout the course of elementary school.

Differential effects. The available data permit the evaluation of the average effects of the length of the preschool experience on levels of achievement and progress in primary school for the population as a whole; they also allow for examination of whether these effects are different in particular groups. Are they stronger for children of socially advantaged or disadvantaged families, for children of French or foreign nationality?

Practically speaking, it is of greatest interest to ascertain if preschool entry at two years of age offers an added advantage, lasting or not, to certain groups of children or not, as compared to preschool entry at three years of age, which will serve as a principal point of reference. The data available in the two studies focus on scholastic achievement of students (at the end of first, second, and fifth grades) in the areas of French and mathematics; at the beginning of first grade, «scholastic achievement» is less clearly defined and so students were evaluated on the basis of (1) cognitive development (2) language development and (3) behavior or work habits relative to school work to evaluate the net effects of the length of the preschool experience.

To evaluate the net effects of the length of the preschool experience

In order to appreciate the influence of, «all things otherwise being equal», the age of preschool entry on student achievement, numerous analyses have been undertaken:

- first, concerning «achievement» at first grade entry (cognitive development, language development and behavior). For example, it is important to examine if early preschool experience is detectable, for children of given socioeconomic or ethnic background, when they start elementary school instruction.
- next, concerning achievement during the primary grades (end of first and second grades), this time in the areas of French and mathematics. This was pursued from two perspectives:
- the first perspective analyzed these individual scores while controlling for the influence of social characteristics, that is, in regards to the family background data. By analyzing the scores from the beginning and end of first grade and the end of second grade in this way, it is possible to examine to what degree the initial potential advantages of early school progressively decline as elementary school advances.
- the second perspective is longitudinal and analyzed the progress of these students between successive grades. The statistical analysis of the score at a given grade level was calculated as a function of the

duration of the preschool experience and the variables of the family setting (as in the preceding case) but also equally as a function of the individual score at elementary school entry.

In the different cases of analyses considered, investigation focused, on the one hand, on the average effect of early preschooling as a whole for the children who benefitted, and on the other hand, the possible differential effect of the family setting. In using such an analysis, it is possible to see if the potential benefits of preschool at two years of age may be more powerful in certain socioeconomic settings than in others.

Adjusted effects of the length of preschool experience on achievement at the beginning of primary school

Results obtained at the beginning of first grade (Table 4) in the areas of cognitive and language development show:

- that the gross effect of the length of preschool experience (Table 1) on «achievement» at the beginning of first grade are due in part to the fact that early preschool entry occurs on the average more frequently among children from advantaged families who start first grade at a more advanced initial level of development.
- that early preschool experience does indeed exert a positive net influence on the achievement of pupils at the beginning of first grade, when family setting characteristics are controlled. Nevertheless, this effect is far from substantial. When the distribution of all achievement scores are standardized with a standard deviation of 15 points, it is the approximate equivalent of 1/6 standard deviation in the area of the cognitive development (2.5 points) and 1/5th standard deviation in the area of language development (2.9 points).

As far as school behavior and work habits, the analysis focused on the influence of early schooling on the attentiveness and participation of students in class. Different possibilities were analyzed but the data published here are limited to the influence of early schooling on the likelihood that students belonged to the group of children perceived as being better prepared for scholastic work. It should be noted that the gross positive influence of early schooling on the school behavior described above is heavily biased by the socioeconomic group to which the student belongs. Advantaged children appear on the average to be more positively inclined to scholastic activities. For a given socioeconomic level, the length of the preschool experience in and of itself does not make a significant difference on the school behavior of pupils at the beginning of first grade.

Note: The distribution of individual achievement for the total population has been standardized to a mean of 100 and a standard deviation of 15, notably to render the deviations comparable between the two studies.

TABLE 4

Gross and net effects (according to family socioeconomic level) of preschool entry age on achievement at the beginning of first grade.

	Preschool entry age			
	2 years old	3 years old	Unknown#	Gain 2/3 years
Cognitive				
Gross effect	+ 6.4 ***	+ 2.3 ***	+ 1.7 ns	+ 4.1
Effect adjusted for family setting	+ 4.3 ***	+1.8 **	+0.7 ns	+ 2.5
Language				
Gross effect	+ 5.6 ***	+ 2.0 *	+ 0.3 ns	+ 3.6

Effect adjusted for family setting	+ 4.8 ***	+ 1.9 *	-0.2 ns	+ 2.9
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School Behavior

Gross effect	+ 0.4 **	+0.1 ns	+ 0.1 ns	+ 0.3
Effect adjusted for family setting	+ 0.3 ns	+0.1 ns	+ 0.2 ns	(+0.2)

= concerns differences in achievement levels for students having an early, but incomplete preschool experience (1 or 2 years) *** = Significant to the .01 level
 ** = Significant to the .05 level
 * = Significant to the .10 level
 ns = not significant

Note: For language, the gross effect of preschool entry at 2 year of age is 5.6 points. It is less than 4.8 points when family setting is controlled.

Methodological Note: For each area considered at this level of study, the first line presents the gross effect of early school entry (obviously identical to what is presented in Table 1) and the second line, the net effect controlled for family setting (father's employment, mother's occupation, family size, nationality and type of housing).

Source of Information: IREDU Research Study of 1900 children, carried out in the French Department of Cote d'Or, from 1986 to 1989.

TABLE 5

Gross and net effects (according to family socioeconomic level) of preschool entry age on achievement (mathematics and French) at the end of first grade and at the end of second grade.

	Preschool entry age			Gain 2/3 years
	2 years old	3 years old	Unknown#	
End of first Grade				
1. Total				
Gross effect	+ 5.2 **	+ 1.6 *	+ 0.7 ns	+ 3.6
Effect adjusted for family setting	+ 1.6 ns	+ 0.2 ns	+ 0.3 ns	(+ 1.4)
2. French				
Gross effect	+ 5.3 ***	+ 1.2 ns	+ 1.2 ns	+ 4.1
Effect adjusted for family setting	+ 1.2 ns	- 0.5 ns	-0.6 ns	(+ 0.7)
3. Mathematics				
Gross effect	+ 5.1 ***	+ 2.0*	+ 0.1 ns	+ 3.1
Effect adjusted for family setting	+ 1.9 ns	+ 0.8 ns	+ 0.0 ns	(+1.1)
End of second grade				

1. Total

Gross effect	+ 5.1 **	+ 1.0 ns	+ 2.4 *	+ 4.1
Effect adjusted for family setting	+ 3.5 ***	+ 0.6 ns	+ 1.6 ns	+ 2.9

2. French

Gross effect	+ 4.8 ***	+ 0.6 ns	+ 3.1 *	+ 4.2
Effect adjusted for family setting	+ 3.1 ***	+ 0.3 ns	+ 2.1 *	+ 2.8

3. Mathematics

Gross effect	+ 5.5 ***	+ 1.3 ns	+ 1.7 ns	+ 4.2
Effect adjusted for family setting	+ 3.9 ***	+ 1.0 ns	+ 1.3 ns	+ 2.9

= concerns differences in achievement levels for students having an early, but incomplete preschool experience (1 or 2 years)

*** = Significant to the .01 level

** = Significant to the .05 level

* = Significant to the .10 level

ns = not significant

Note: At the end of first grade, the gain in achievement for children enrolled in preschool at two years old in comparison to those entering at three years old is 4.1 points for French and 3.1 for mathematics (gross effect).

This data reveals the potentially lasting «advantage», and therefore benefit, at the beginning of first grade, for children who entered preschool at 2 years of age.

Source of Information: IREDU Research Study of 1900 children, carried out in the French Department of Cote d'Or, from 1986 to 1989.

Less convincing in first grade, more significant in second grade

By examining achievement at the end of first and second grade, it is clear that preschool entry at two years of age leaves significant and positive effects at both these levels of studies (Table 5). The amplitude of the preschool effect is comparable in intensity in both French and mathematics.

When family background is taken into account, there is an interesting occurrence. In essence, at the end of first grade, the net advantage of children entering preschool at two years as compared to their peers who entered at three years, while remaining positive, is nevertheless extremely tenuous. On the other hand, if achievement at the end of second grade is examined, this time the advantage is clearly more substantial (2.9 points or 1/5th standard deviation) and statistically significant in favor of the children who entered at two years of age.

It seems as if children who entered preschool at two years old had acquired certain lasting advantages that were infrequently called upon during first grade, but came to light during second grade. Another way to illustrate this same point consists in examining the progress of pupils in the course of the first two grades of elementary school. The progress of students throughout the course of first grade is not influenced by the age of preschool entry; the scores of all pupils at the end of first grade are close, whether or not they have profited from an early, i.e., entry at two years of age, preschool experience (Table 6). In contrast, throughout second grade, students who entered preschool at two years of age show greater progress than their peers who entered preschool later.

These results invite further analysis at a higher grade level of the effects over time of early preschool enrollment; the analysis that took place at the end of 5th grade will be presented later in this article.

TABLE 6
Net impact of preschool experience on student progress during first grade, during second grade and between the beginning of first grade and the end of second grade.

	Preschool entry age			Gain 2/3 years
	2 years old	3 years old	Unknown#	
End-1st grade/Start-1st grade				
Total	+ 0.7 ns	+ 0.2 ns	- 0.6 ns	(+0.5)
French	+ 1.1 ns	+0.0 ns	- 0.2 ns	(+ 1.1)
Mathematics	+ 0.3 ns	+ 0.4 ns	- 0.9 ns	(- 0.1)
End-2nd grade				
Total				
level/beginning of first grade	+ 1.2 ns	+ 0.1 ns	+ 1.1 ns	(+ 1.1)
level/end of first grade	+ 1.8 **	+ 0.5 ns	+ 1.9 *	+ 1.3
French				
level/beginning of first grade	+ 1.0 ns	- 0.1 ns	+ 1.6 ns	(+1.1)
level/end of first grade	+ 1.9 *	+ 0.6 ns	+ 2.5 *	+1.3
Mathematics				
level/beginning of first grade	+1.4 ns	+0.4 ns	+ 0.5 ns	(+ 1.0)
level/end of first grade	+ 2.4 **	+ 0.4 ns	+ 1.2 ns	+ 2.0

= concerns differences in achievement levels for students having an early, but incomplete preschool experience (1 or 2 years)

*** = Significant to the .01 level

** = Significant to the .05 level

* = Significant to the .10 level

ns = not significant

Note: The net gain obtained by students entering preschool at two years compared to those entering at three years old is +1.1 point in French, -0.1 point in mathematics controlling for the influence of family background (father's employment, mother's occupation, family size, nationality and type of housing).

Source of Information: IREDU Research Study of 1900 children, carried out in the French Department of Cote d'Or, from 1986 to 1989.

Early preschool instruction... substitute for family background?

Viewing early preschool instruction as a substitute for the family setting, it can be hypothesized that preschool entry at two years of age would be more beneficial for children from disadvantaged social backgrounds than for others. For example, it might be posited that early schooling would have a more important impact upon children from families of foreign nationality than for French children to the extent that preschool entry at two years allows the former to acquire knowledge and skills (notably, in the area of the language) than the latter have been able to acquire «naturally» in the home setting. In a larger sense, it might likewise be expected that early schooling would more greatly benefit children of modest socioeconomic background.

Three important measures of «social handicap» (see Note 1 below) of children have been designed to analyze this question.

1. The first measure compares children whose fathers are manual laborers to others;
2. The second measure compares children of foreign nationality to French children;
3. Finally, the third measure compares children residing in government subsidized housing to other children.

Note: The distribution of individual achievement for the total population has been standardized to a mean of 100 and a standard deviation of 15, notably to render the deviations comparable between the two studies.

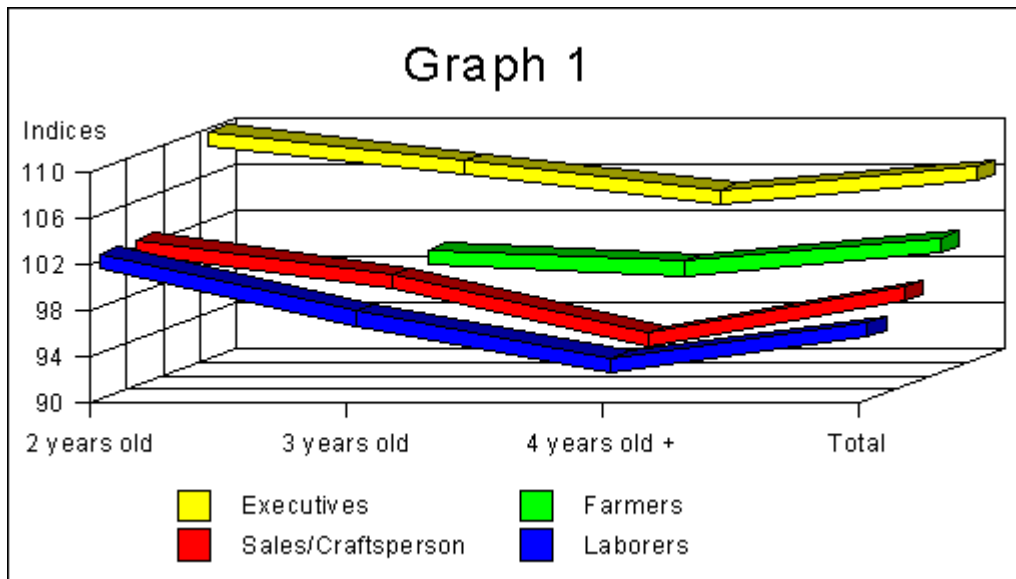
Analyses were conducted on the different components of student achievement at the end of preschool and on French and mathematics achievement at the end of first and second grade. The results do not cast doubt on the benefits of preschool entry at two years of age, but do raise questions about the specificity of these effects and the benefit to children of particular groups. Early preschool entry leaves positive effects in general, effects that are not, however, stronger among those children from disadvantaged backgrounds; entering preschool at two years does not therefore seem to be a real substitute for a disadvantaged family background.

Achievement results at the end of fifth grade

It is possible to examine the data from the national study of the DEP Evaluation of the second year, middle cycle, 1987) to determine whether positive effects of early preschool entry are still visible at the end of elementary school.

Using the gross data, it is clear that pupils who entered preschool at two years old have an achievement level at the end of fifth grade of 104.8 (Graph 1) as compared to the average score of 101.1 for students who entered at three years of age and 97.7 for those pupils who entered at four years of age or more. These results must always be interpreted with caution to the extent that there are global social effects (children of laborers, for example, have an achievement level of 96.5 at the end of fifth grade, while the average score of children whose fathers are executives is 106.0 (nearly 10 points more). It is therefore probable, as noted previously, that there are social differences in accessing early preschool instruction.

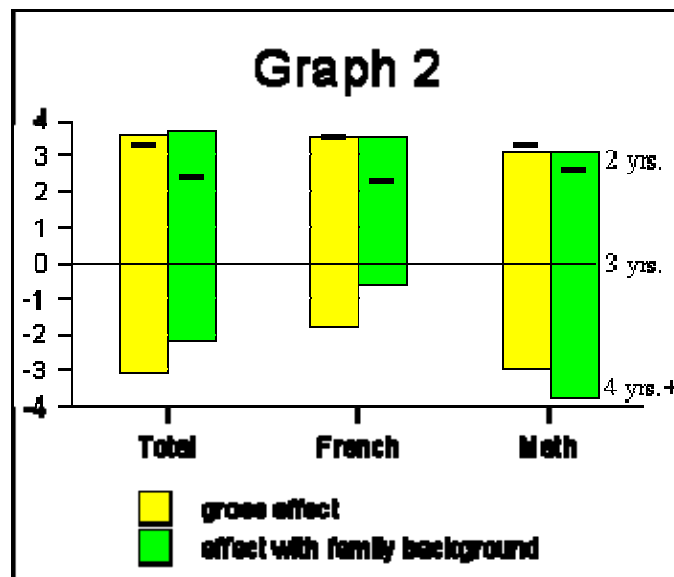
Achievement level at the end of fifth grade according to the age of preschool entry and the professional category of father
($x = 100$, s. d. = 15)



It can be noted that early preschool experience seems beneficial to children of different socioeconomic backgrounds. Children of laborers gained 7.8 points in terms of the final achievement level at the end of fifth grade, according to whether they started preschool at two years of age as opposed to four years of age or later; they gained 4.4 points according to whether they entered preschool at two or three years of age. For their part, children whose fathers are executives and who started preschool at two years old gained respectively 4.6 and 2.5 points, as compared to their peers who started preschool at four and three years of age.

As was done previously, it is preferable to adopt a multivariate approach which leads to an estimate of the influence of, «all things being equal,» the age of preschool entry (Graph 2).

Net and gross effects (controlled for family background) of the age of preschool entry on achievement (mathematics and French) at the end of fifth grade (National DEP Study)



Note: At the end of fifth grade, the gross effect of starting preschool at two years as compared to starting at three years is +3.7 points. The net effect, with family background controlled, is identical.

Source: DEP Study, undertaken in 1987, concerning 2100 children.

By extending the result obtained at the end of second grade, this data again reveals that the age of preschool entry continues to exert a positive effect on achievement level of students at the end of elementary school. The average net difference in terms of achievement, between students who entered preschool at two years of age and those who entered at three years, is 3.8 points (see Note 1 below) and relates to achievement in French as well as mathematics. This gain of 3.8 points corresponds to a little more than 1/3 of the gross social discrepancy of achievement that separates children of laborers and executives, at the end of fifth grade.

Note: While not extreme, this effect is however far from being negligible since it corresponds to approximately 1/4 standard deviation of the global distribution of achievement at the end of fifth grade.

At the level of this national study, an attempt was also made to test the existence of possible interactions between early preschool entry, on the one hand, and socioeconomic level and nationality of students on the other hand. Once, again, as was the case with the IREDU sample of first and second grade, at the end of fifth grade, no significant differences are noted regarding preschool entry at two years according to these two important dimensions of students' family background. The influence of the age of preschool entry appears, for instance, quantitatively comparable given different social settings.

From a pedagogical point of view, it is clear that preschool entry at two years of age offers an advantage in terms of achievement, as compared to starting preschool at three years old. This advantage proves to be sufficiently durable so that effects remain at the end of elementary school. As compared to their peers who entered preschool at a later age, pupils starting preschool at two years begin elementary school with a higher level of achievement and maintain (even increase) this initial advantage throughout the remainder of elementary school (net advantage of 2.5 points at the beginning of first grade, 2.9 points at the end of second grade and 3.8 points at the end of fifth grade).

To evaluate the value of early preschool, i.e., starting at two years old, it is useful to examine the estimated gain of 3.8 points at the end of elementary school. From the general perspective of how schools function and concern about improving the quality of education, the relevant question is whether this benefit is «at the same level» or equivalent to the corresponding expense incurred by providing this early preschool experience to two year olds.

To cite an example, it is roughly estimated that the average cost of a year of preschool is the equivalent of the corresponding cost to reduce class size by five students in elementary school classes. Now, a reduction of this class size, according to calculations, would lead to an average gain of 1.6 points at the end of fifth grade.

Without attaching too much importance to the precision of this situation, it therefore seems that the strategy of extending preschool to two year olds presents a better «cost effectiveness» relationship than a reduction in elementary class size. This result is more a measure of the weaknesses of the benefits associated with a reduction in class size than a definitive argument in favor of the development of preschool for two year olds. It is possible that other strategies for improving the quality of elementary school would yield similar, or even better, «cost effectiveness» relationships.

Box 2

It is important to take into account the relativity of the situation examined, as is demonstrated by the fact that the data relates to children who were two years old at the start of the 1980s. The effects measured here are related, at least in part, to the conditions or way in which this early preschool experience was implemented. It is possible that in a certain number of situations two year olds were grouped with three year olds and that this situation proved beneficial by sheer «absorption» or «osmosis» beyond the specific benefit associated with the nature of early preschool instruction.